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EDITORIAL

The Case Report Reimagined-AI as a Catalyst, Collaborator and Ethical Challenge

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Abstract

Artificial Intelligence (AI) is fundamentally transforming the creation and utility of radiology case reports. This editorial argues that AI transcends its role as a mere tool, evolving into a collaborative partner that can discover rare findings, enhance narrative synthesis and amplify educational value. However, this integration necessitates a critical framework to address ensuing ethical dilemmas, including authorship, bias and accountability, ensuring AI serves to augment rather than replace human expertise.

Key Words: *Artificial intelligence; Radiology; Case reports; Medical education; Ethics*

Introduction

The new co-pilot in the reading room

The radiology case report, a cornerstone of medical education and a beacon for rare diagnoses, stands at a digital crossroads. For generations, its creation has been a uniquely human endeavor. Today, we are witnessing the arrival of a powerful new force in this process Artificial Intelligence (AI). This editorial explores the transformative role of AI in redefining the radiology case report, arguing that it is evolving into an indispensable collaborator, a progression underscored by recent analyses of AI's trajectory in medicine [1,2]. This demands a new framework that balances immense potential with rigorous ethical and professional accountability.

Methodology

Deconstructing AI's multifaceted role

To assess AI's impact, we must examine its intervention across the entire lifecycle of a case report.

- **The proactive discoverer (pre-writing phase):** Advanced AI-powered detection systems can now identify rare, atypical patterns that might escape even expert eyes. In this capacity, AI acts as a catalyst, initiating the very possibility of a report.
- **The synoptic synthesizer (writing phase):** Here, AI transitions to a collaborator. Natural language processing models can assist in structuring reports and

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performing contextual literature reviews. Emerging evidence shows large language models have potential for assisting in drafting, though their role must be carefully defined [2].

- **The interactive amplifier (post-publication phase):** This is where AI unlocks transformative educational value. A static pdf can become a dynamic, interactive module. Pioneering studies demonstrate algorithms that automatically retrieve phenotypically similar cases from vast databases, showcasing AI's tangible utility as a diagnostic and educational collaborator [3].

Findings

Navigating the promise and the peril

The integration of AI presents a dual landscape.

- **Enhanced efficacy and education:** AI demonstrably reduces time to publication and expands educational utility, promising a new era of efficient, data-driven case-based learning [1].

- **The authorship dilemma:** This is the core ethical quandary. We must conclude that AI, in its current state, is a sophisticated instrument. It lacks intentionality and accountability and should be acknowledged in a "methodological note" section, not granted authorship.

- **Critical risks:** Over-reliance risks diagnostic anchoring. Algorithmic bias and data privacy pose grave threats, especially as AI tools become more integrated into clinical workflows [4]. Furthermore, the rapid adoption of AI-based medical devices highlights the urgent need for harmonized ethical guidelines [4,5].

Conclusion

A framework for responsible co-creation

The future lies in a synergistic partnership. To harness this potential responsibly, we propose a three-pillar framework:

- **Develop and adopt "AI-assistance" disclosure standards:** Journals must create mandatory reporting sections detailing the AI tool used and the human author›s role in validating all output.

- **Prioritize the development of "explainable AI" for case-based learning:** Tools must not only provide an answer but also show their reasoning to foster critical engagement.

- **Integrate critical AI literacy into radiological training:** Future radiologists must be trained to critically evaluate AI outputs, understand machine learning principles to recognize bias and master the art of supervising AI-generated content [5].

AI is poised to elevate the radiology case report to unprecedented levels of discovery and educational power. By proactively establishing robust ethical guidelines, disclosure protocols and training pathways informed by ongoing debates in the literature we can ensure this technology amplifies human expertise [4,5]. Our goal must be a future where AI empowers radiologists to publish deeper insights from single cases, accelerating collective learning while steadfastly preserving the human judgment and ethical responsibility at the heart of our specialty.

References

1. Rabbani SA, El-Tanani M, Sharma S, et al. Generative artificial intelligence in healthcare: applications, implementation challenges and future directions. Bio Med Inf. 2025;5:37.
2. Nensa F. The future of radiology: the path towards multimodal AI and superdiagnostics. Eur J Radiol AI. 2025;2:100014.
3. Katal S, York B, Gholamrezanezhad A. AI in radiology: from promise to practice-a guide to effective integration. Eur J Radiol. 2024;181:111798.
4. Aravazhi PS, Gunasekaran P, Benjamin NZ, et al. The integration of artificial intelligence into clinical medicine: trends, challenges and future directions. Dis Mon. 2025;71:101882.
5. Reddy S. Global harmonization of artificial intelligence-enabled software as a medical device regulation: addressing challenges and unifying standards. Mayo Clin Proc: Dig Health. 2025;3:100191.